

CLAIMS

What is claimed is:

1. A vibration isolation mounting element for a motorized garage door opener system, the vibration isolation mounting element comprising:
a first mounting member configured for mounting to structure mounted inside a garage;
a second mounting member configured for mounting to structure mounted to a motor in the motorized garage door opener system; and
a vibration isolation material disposed between the first mounting member and the second member to hold the first and second mounting members together while isolating the structure mounted inside the garage from vibration produced by the motor.
2. The vibration isolation mounting element of claim 1, wherein the first mounting member includes a substantially planar flat plate.
3. The vibration isolation mounting element of claim 2, wherein the substantially planar flat plate includes an interface region in contact with the vibration isolation material and a flange region that extends away from the vibration isolation material.
4. The vibration isolation mounting element of claim 3, wherein the flange region includes structure defining at least one aperture configured to receive a fastener for mounting the vibration isolation mounting element to structure inside a garage.

5. The vibration isolation mounting element of claim 4, wherein the flange region includes structure defining at least two apertures, each said aperture configured to receive a fastener for mounting the vibration isolation mounting element to structure inside the garage.

6. The vibration isolation mounting element of claim 5, wherein at least two of the apertures are aligned in a common horizontal plane when the vibration isolation mounting element is mounted to the structure inside the garage.

7. The vibration isolation mounting element according to claim 1, wherein the second mounting member includes a substantially planar flat plate.

8. The vibration isolation mounting element according to claim 7, wherein the second mounting member includes at least one fastening element attached to the substantially planar flat plate, wherein the fastening element is configured for mounting to a structure mounted to a drive motor in the motorized garage door opener system.

9. The vibration isolation mounting element according to claim 8, wherein the second mounting member includes at least two fastening elements attached to the substantially planar flat plate, wherein each of the fastening elements is configured for mounting to a structure mounted to the drive motor.

10. The vibration isolation mounting element according to claim 9, wherein at least two of the fastening elements attached to the substantially planar flat plate are aligned in a common horizontal plane when the vibration isolation mounting element is mounted to structure inside a garage.

11. The vibration isolation mounting element according to claim 8, wherein the fastening element is a threaded bolt shaft configured to receive a nut to fix the vibration isolation mounting element to the structure mounted to the drive motor.

12. The vibration isolation mounting element of claim 11, wherein the second mounting member includes at least two threaded bolt shafts attached to the substantially planar flat plate, and wherein each of said threaded bolt shafts is configured to receive a nut to fix the vibration isolation mounting element to the structure mounted to the drive motor.

13. The vibration isolation mounting element of claim 12, wherein at least two of the threaded bolt shafts are aligned in a common horizontal plane when the vibration isolation mounting element is mounted to structure inside a garage.

14. The vibration isolation mounting element of claim 1, wherein the first and second mounting members are formed of metal, and wherein the vibration isolation material is formed of a material selected from the group consisting of natural rubber and synthetic rubber.

15. A vibration isolation mounting element for a motorized garage door opener system, the vibration isolation mounting element comprising:

- a substantially planar first mounting plate, the first mounting plate comprising an interface region and a flange region;

- a substantially planar second mounting plate;

- at least one fastening element attached to the second mounting plate and configured for mounting to a structure mounted to a drive motor in the motorized garage door opener system; and

a vibration isolation material disposed between the first and second mounting plates;

wherein the vibration isolation material contacts the first mounting plate in the interface region and the first mounting plate's flange region extends outward of the vibration isolation material and the first mounting plate's interface region; and

wherein the structure of the first mounting plate's flange region defines at least one aperture configured to receive a fastener for mounting the vibration isolation mounting element to structure inside a garage.

16. The vibration isolation mounting element according to claim 15, wherein at least two fastening elements are attached to the second mounting plate at least two of the fastening elements are configured for mounting to the structure mounted to the drive motor.

17. The vibration isolation mounting element according to claim 16, wherein at least two of the fastening elements attached to the second mounting plate and configured for mounting to the structure mounted to the drive motor are aligned in a common horizontal plane when the vibration isolation mounting element is mounted to the structure inside the garage.

18. The vibration isolation mounting element according to claim 15, wherein the fastening element is a threaded bolt shaft configured to receive a nut to fix the vibration isolation mounting element to the structure mounted to the drive motor.

19. The vibration isolation mounting element according to claim 18, wherein the at least one fastening element includes at least two threaded bolt shafts, and wherein at least two of the threaded bolt shafts are each attached to

the second mounting plate and configured for mounting to the structure mounted to the drive motor.

20. The vibration isolation mounting element of claim 19, wherein at least two of the threaded bolt shafts are aligned in a common horizontal plane when the vibration isolation mounting element is mounted to structure inside the garage.

21. The vibration isolation mounting element of claim 15, wherein the first and second mounting members are formed of metal, and wherein the vibration isolation material is formed of a material selected from the group consisting of natural rubber and synthetic rubber.

22. A motorized garage door opener system comprising:
a motor;
a motor mounting structure mounted to the motor;
a vibration isolation mounting element mounted to the motor mounting structure, the vibration isolation mounting element comprising:
a first mounting member configured for mounting to structure inside a garage;
a second mounting member configured for mounting to the motor mounting structure; and
a vibration isolation material disposed between the first mounting member and the second mounting member to hold the first and second mounting members together while isolating the structure inside the garage from vibration produced by the motor.

23. The motorized garage door opener system of claim 22, wherein the first mounting member includes a substantially planar flat plate.

24 The motorized garage door opener system of claim 23, wherein the substantially planar flat plate includes an interface region in contact with the vibration isolation material and a flange region that extends away from the vibration isolation material.

25. The motorized garage door opener system of claim 24, wherein the flange region includes structure defining at least one aperture configured to receive a fastener for mounting the vibration isolation mounting element to the structure inside the garage.

26. The motorized garage door opener system of claim 25, wherein the flange region includes structure defining at least two apertures, and wherein at least two of the apertures are each configured to receive a fastener for mounting the vibration isolation mounting element to the structure inside the garage.

27. The motorized garage door opener system of claim 26, wherein at least two of the apertures configured to receive a fastener for mounting the vibration isolation mounting element to the structure inside the garage are aligned in a common horizontal plane when the vibration isolation mounting element is mounted to the structure inside the garage.

28. The motorized garage door opener system of claim 22, wherein the second mounting member includes a substantially planar flat plate.

29. The motorized garage door opener system of claim 28, wherein the second mounting member includes at least one fastening element

attached to the substantially planar flat plate, wherein the fastening element is configured for mounting to the motor mounting structure.

30. The motorized garage door opener system of claim 29, wherein the second mounting member includes at least two fastening elements attached to the substantially planar flat plate, and wherein at least two of the fastening elements are configured for mounting to the motor mounting structure.

31. The motorized garage door opener system of claim 30, wherein at least two of the fastening elements attached to the substantially planar flat plate and configured for mounting to the motor mounting structure are aligned in a common horizontal plane when the first mounting member of the vibration isolation mounting element is mounted to the structure inside the garage.

32. The motorized garage door opener system of claim 30, wherein the fastening element is a threaded bolt shaft configured to receive a nut to fix the vibration isolation mounting element to the motor mounting structure.

33. The motorized garage door opener system of claim 32, wherein the second mounting member includes at least two threaded bolt shafts, each of said bolt shafts configured to receive a nut to fix the vibration isolation mounting element to the motor mounting structure.

34. The motorized garage door opener system of claim 33, wherein at least two of the threaded bolt shafts configured to receive a nut to fix the vibration isolation mounting element to the motor mounting structure are aligned in a common horizontal plane when the vibration isolation mounting element is mounted to the structure inside the garage.

35. The motorized garage door opener system of claim 22, wherein the first and second mounting members are formed of metal, and wherein the vibration isolation material is formed of a material selected from the group consisting of natural rubber and synthetic rubber.

36. The motorized garage door opener system of claim 22, wherein the motor mounting structure includes a substantially planar motor mounting plate.

37. The motorized garage door opener system of claim 36, wherein the motor is configured for mounting to an underside of the motor mounting plate.

38. The motorized garage door opener system of claim 22, wherein the motor mounting structure includes at least one mounting flange, and wherein the second mounting member of the vibration isolation mounting element is configured for mounting to the mounting flange.

39. The motorized garage door opener system of claim 38, wherein the motor mounting structure includes at least two mounting flanges, and wherein the second mounting member of each of two vibration mounting elements is configured for mounting to one of the mounting flanges.

40. The motorized garage door opener system of claim 39, wherein the two mounting flanges are disposed on opposite sides of a motor mounting plate, and wherein the motor is configured for mounting to an underside of the motor mounting plate.

41. A motorized garage door opener system comprising:

a first vibration isolation mounting element and a second vibration isolation mounting element, each said vibration isolation mounting element comprising:

a substantially planar first mounting plate comprising an interface region and a flange region, wherein the flange region includes structure defining at least two apertures;

a substantially planar second mounting plate;
at least two threaded bolt shafts attached to the second mounting plate; and

a vibration isolation material disposed between the first and second mounting plates;

a substantially planar motor mounting plate;

a drive motor mounted to the underside of the motor mounting plate;

a first mounting flange and a second mounting flange attached to the motor mounting plate on opposite sides of the drive motor; and

nuts threaded onto the threaded bolt shafts to secure the first vibration isolation mounting element to the first mounting flange and the second vibration isolation mounting element to the second mounting flange;

wherein the apertures of the first mounting plates are configured to mount the first and second vibration isolation mounting elements, the motor mounting plate, and the drive motor to structure inside a garage.

42. A motorized garage door opener system comprising:

a motor;

a motor mounting structure mounted to the motor;

a vibration isolation mounting element mounted to the motor mounting structure, the vibration isolation mounting element comprising:

a mounting member configured for mounting to structure inside a garage; and

a vibration isolation material mounted between the mounting member and the motor mounting structure to hold the vibration isolation mounting element's mounting member and the motor mounting member together while isolating the structure inside the garage from vibration produced by the motor.

43. The motorized garage door opener system of claim 42, wherein the mounting member includes a substantially planar flat plate.

44. The motorized garage door opener system of claim 43, wherein the substantially planar flat plate includes an interface region in contact with the vibration isolation material and a flange region that extends away from the vibration isolation material.

45. The motorized garage door opener system of claim 44, wherein the flange region includes structure defining at least one aperture configured to receive a fastener for mounting the vibration isolation mounting element to the structure inside the garage.

46. The motorized garage door opener system of claim 45, wherein the flange region includes structure defining at least two apertures, and wherein at least two of the apertures are each configured to receive a fastener for mounting the vibration isolation mounting element to the structure inside the garage.

47. The motorized garage door opener system of claim 46, wherein at least two of the apertures configured to receive a fastener for mounting the

vibration isolation mounting element to the structure inside the garage are aligned in a common horizontal plane when the vibration isolation mounting element is mounted to the structure inside the garage.

48. The motorized garage door opener system of claim 42, wherein the mounting member is formed of metal, and wherein the vibration isolation material is formed of a material selected from the group consisting of natural rubber and synthetic rubber.

49. The motorized garage door opener system of claim 42, wherein the motor mounting structure includes a substantially planar motor mounting plate.

50. The motorized garage door opener system of claim 49, wherein the motor is configured for mounting to an underside of the motor mounting plate.

51. The motorized garage door opener system of claim 42, wherein the motor mounting structure includes at least one mounting flange, and wherein the vibration isolation material is adhered to the mounting flange.

52. The motorized garage door opener system of claim 51, wherein the motor mounting structure includes at least two mounting flanges, and wherein the vibration isolation material of each of two vibration mounting elements is configured for mounting to one of the mounting flanges.

53. The motorized garage door opener system of claim 52, wherein the two mounting flanges are disposed on opposite sides of a motor mounting plate, and wherein the motor is configured for mounting to an underside of the motor mounting plate.

54. A motorized garage door opener system comprising:

a first vibration isolation mounting element and a second vibration isolation mounting element, each said vibration isolation mounting element comprising:

a substantially planar first mounting plate comprising an interface region and a flange region, wherein the flange region includes structure defining at least two apertures; and

a vibration isolation material adhered to the first mounting plate;

a substantially planar motor mounting plate;

a drive motor mounted to the underside of the motor mounting plate; and

a first mounting flange and a second mounting flange attached to the motor mounting plate on opposite sides of the drive motor;

wherein the vibration isolation material of each of the vibration isolation mounting elements is adhered to one of the first and second mounting flanges so that the first and second vibration isolation mounting elements are disposed on opposite sides of the drive motor; and

wherein the apertures of the first mounting plates are configured to mount the first and second vibration isolation mounting elements, the motor mounting plate, and the drive motor to structure inside a garage.

55. A method for assembling a motorized garage door opener system, the method comprising:

providing a motor mounted to motor mounting structure;

providing a vibration isolation mounting element comprising:

a first mounting member;

a second mounting member; and

a vibration isolation material disposed between the first mounting member and the second mounting member to hold the first and second mounting members together while isolating the first mounting structure from vibration transmitted into the second mounting structure;

mounting the vibration isolation mounting element's second mounting member to the motor mounting structure; and

mounting the vibration isolation mounting element's first mounting member to structure inside a garage.